MEETING SUMMARY
STEERING COMMITTEE
ETV SMALL SYSTEMS PILOT
MARCH 5, 1997

Bruce Bartley of NSF *International* welcomed meeting attendees and read NSF's Antitrust Statement, which reads as follows: "Because this meeting involves representatives of competing businesses, it is important that I get everyone's agreement before we begin that the meeting will be conducted in full compliance with the antitrust laws. We must avoid any comment or action that encourages joint action by participating firms to restrict their competition. If any of you have any questions, I refer you to the NSF Antitrust Guide for the conduct of meetings."

I. ETV Status and Schedule (Penelope Hansen, EPA)

The environmental technology verification (ETV) program was started about in 1995 with a single pilot project and currently has 12 pilots, including the small systems drinking water pilot. Each of the pilots is a partially controlled experiment, not a program. The goal of the ETV is to "provide credible environmental technology performance data from the disinterested third parties under the auspices of the EPA." The ETV strategy operating principles, which have been printed and are being delivered, include the following:

- Make objective performance information available to the environmental marketplace. This is a voluntary program, to which all vendors are welcome to participate. The program does not "approve" or "disapprove" technologies.
- Focus solely on commercial-ready technologies; not research or "scale up" program.
- Leverage capacity, expertise, and facilities of others through third party partnerships, which is beneficial and necessary in this time of government downsizing.
- Utilize expertise of stakeholders by setting priorities, developing and agreeing upon protocols and operating procedures.
- Program begins with a 3 to 5 year pilot phase for 10 to 12 technology areas.
- Pilots begin with narrow technology area focus, and expand as appropriate based on market forces.
- Data collected on pilot operations and outcomes; program decisions ideally to be made in 1999.

The general ETV schedule is as follows:

- Program begins in October 1995
- Ten to twelve projects operational by October 1997
- Data evaluation to be performed in 1999
- Recommendation to Congress on the program future in 2000.

Data evaluation will be performed by an independent contractor, which will be ICF Kaiser. ICF Kaiser will collect information, contact people within the steering committee and other interested

parties, and write up all data collected on how the 12 pilots are operating, the costs, acceptance, etc. No real output on the programs' effect on sales of the technologies will be collected due to the timing of the data evaluation.

General phases of the program include forming partnerships, forming stakeholders groups, developing protocols (small scale drinking water is at this point), operation phase (P2 waste treatment is at this point), and site characterization in report/statement phase. An example of this report was passed around. The report would likely include the name, address, and phone number of the company, the type and name of the technology, and the name of the EPA. The report format may change, as this is in the pilot phase.

When addressing Congress in the year 2000, several questions should be addressed:

- Does the environmental marketplace need and/or value an EPA verification program? For some fields, the answer may be "yes", while for others, it may be "no".
- Is the need different from one technology area to another? Where is the value of the program? Does the program facilitate the protection of the environment with cheaper, better technologies? If the answer is "yes", the program should continue.
- Can we design a credible program that the developer community can afford? Can we phase out federal funding and phase in private sector funding, as the private sector is the party which benefits from the program? Minimal funding will likely be recommended to keep the program operating, but most of the funding will be from the manufacturers.
- Where is the value added to ETV?
  - Protocol development?
  - QA oversight?
  - EPA verification statement?
  - Some of the above?
  - All of the above?

Vision for the ETV in the year 2000:

- A fully functioning universe of numerous third party verification organizations covering all classes of technology.
- Protocols, operating procedures, and effective communication tools agreed upon by all major stakeholders.
- Funding derived from EPA, verification entities, and technology vendors.

II. EPA/NSF Package Drinking Water Pilot Status/Schedule (Bruce Bartley, NSF *International*)

An overview of this pilot can be found on the NSF web page or in the brochures that were available at this meeting.

In general, this project is part of the EPA's Environmental Technology Initiative's (ETI) Environmental Technology Verification (ETV) Program. This pilot project is being led through the Office of Research and Development (ORD) of the EPA, with the goal of accelerating the use of environmental treatment technology in the United States and internationally. This pilot project is one of 12 pilots currently underway.

The goal of this pilot is to organize, develop, and pilot a project for verification testing of packaged/modular drinking water treatment systems. The expected results are a self-sustaining performance verification program through user fees, data sharing and issuance of joint EPA/NSF statements of performance verification.

Key activities of the project are:

- Forming a steering committee to advise NSF and the EPA on the pilot project's activities
- Develop protocols and test plans that can assure quality data regardless of the testing organization
- Testing to verify the performance of commercially ready treatment technologies used in specific equipment
- Establish a self-sustaining performance verification program.

Development of protocols include research and writing of the draft protocol by an outside specialist, review by the protocol panel, revision of the protocol, review by the state drinking water administrators and the protocol panel, revisions of the protocol and review by the steering committee, and one of the following actions by the steering committee:

(1) Return the protocol for more work
(2) Make changes to the protocol
(3) Recommend NSF and EPA approval

A final protocol is then distributed by NSF and the EPA.

The schedule of activities, meeting summaries, and all draft and final versions of documents can all be found on the NSF web site for this pilot project.

Bruce displayed the testing critical path for the first year of operation and explained that all topics will be discussed at today's meeting with the exception of protocol development. Topics to be covered include existing (historical) data, project quality management system (including procedures, policies, and contracts), qualification of testing organizations, public notice, and application.

The purpose of the protocol validation study was to evaluate the draft protocol and proposed verification process. Results indicated that the protocol needs a summary sheet or checklist to help in the development of the field operations document. The projected and actual costs of testing will be included as part of the draft report in April, and the report from the contractor will be completed by the first week of May. The manufacturer chosen for the pilot has not been involved in the process, but is excited about this project. The field testing organization has also

not been involved with the process to date. Both parties were chosen to see if the process could be carried out. Both parties will remain anonymous.

The state alternative technology approval process was examined, and this project fits into the category "state determine technological efficacy". For this reason, a survey was sent to each state to ascertain information regarding the states' acceptance of the results of this project. The survey was intended to establish a baseline of existing pilot requirements and the value to the states of the verification testing. Fourteen responses have been received to date and ASDWA will follow up and encourage response to this survey. A summary of the survey will be completed by the first week of April.

III. EPA Policy on Existing (Historical) Data (Jeffrey Adams, EPA)

One of the key issues which has been raised in the pilot projects is the use of data from previous studies or from systems currently in operation. Guidelines for the use of this data need to be established and the EPA has drafted a document intended for this purpose within the last two weeks. The possibilities regarding the use of existing data include the following scenarios:
(1) The manufacturer submits a data package so comprehensive that no additional testing will be required. This scenario is expected to be rare.
(2) The manufacturer submits data that reduce the need for the testing of some parameters.
(3) The manufacturer submits data that supplement their claim but do not reduce the need for testing to support the claim.

Jeff Adams proposes to assemble a task force comprised of state representatives, manufacturers, academia, and consultants to develop standards for evaluation of existing data, acceptance criteria, evaluation protocols, etc. Anyone having interest in this task force is encouraged to see Jeff Adams. It is agreed that this is a very important issue at this point, and that all parties are interested in resolving this issue. This has been a common issue in all ETV pilot projects, and it may be necessary for each pilot to develop its own protocol for handling the use of existing data.

Break

III. Concerns of Steering Committee on Project Operation (Peter Shanaghan, EPA)

Peter Shanaghan's goal is to identify all concerns of manufacturers and any concerns of the steering committee. After all issues are identified, a plan can be developed on how to resolve each of the issues. His agenda included the following:
(1) Baseline - items that are generally agreed upon at this point.
(2) Individual Stakeholders Concerns - hold nothing back at this point
(3) Discussion of Concerns and Identification of Major Concerns - this time may be utilized to resolve any issues that are able to be resolved today
(4) Plan for the Resolution of Concerns

Peter Shanaghan reminds attendees the difference between the ETV pilot vs. the long-term program and technical protocols vs. program policies and procedures. The steering committee will be used to review and change the policies as needed at this time.

Baseline Items

(1) Status Quo is generally found to be unacceptable/unsatisfactory:
- Some unnecessary or duplicative pilot testing of equipment occurs under status quo
- Results in higher costs for packaged/modular small systems
- Results in higher transaction costs for equipment suppliers and states

(2) Status Quo, to some extent, hinders the application of potentially lower cost technologies

(3) A majority of the states agree that an effective program of equipment performance verification would reduce duplicative pilot testing requirements and would allow for greater use of data

(3a) Effective program of equipment performance verification needs to be a third party program:
- 1st party=equipment supplier
- 2nd party=organization retained by supplier for testing and performance evaluation
- 3rd party=a verification entity to oversee the other two parties and the overall process

(4) Product vs. Technology - This project must be a product-specific testing program

(5) We are all committed to making this effort succeed.

Individual Stakeholders Concerns

Peter explains that he will entertain concerns from steering committee and then observers. He suggests that Joe Harrison begin with the list of concerns submitted to NSF with the first ballot.

Joe summarizes concerns expressed in the letter dated February 14, 1997, which summarizes concerns of the Water Quality Association (WQA), the Industrial Water Conditioning Institute, and the water and wastewater treatment industry. The major points of the letter include:

- In favor of the verification program to support state approval and are in favor of the program in general.
- Like the test plans and feel that they cover the Surface Water Treatment Rule, QA/QC.
- States may approve equipment, which is ideal outcome.
- Like the idea of qualifying field testing organizations: want to continue to use people who has been historically for small systems (professional engineering firms, etc.)
- Voted “no” on ballot because of third part, which was the procedure for signing the contracts, selecting a test site, and getting their plan approval, all of which was dominated by through a single party, which happens to be NSF. The restriction of having every verification go through one party is not acceptable for the long term. We can pilot a procedure that could become fully operational in the long term.

The February 11 meeting held by WQA resulted in seven points or conditions that are unanimously insisted upon by the WQA Small Systems Committee and the Industrial Water Conditioning Institute, which are:

(1) There must be no requirement for contractual arrangements between NSF and industry equipment manufacturers or assemblers.
(2) There must be an effective process developed to review and utilize historical performance data from existing equipment installations.
(3) NSF and USEPA should continue to develop national USEPA test plans for modular water treatment equipment.
(4) NSF and USEPA should continue to develop an objective and open process to qualify acceptable testing organizations, amenable to the smaller consulting firms and universities that typically service local small water systems.
(5) The test plans and protocols must be identified as USEPA documents, and the equipment verification reports labeled with the USEPA logo as conforming to the uniform national criteria.
(6) All test plans should be completed and available for use prior to initiation of equipment testing; multiple plans will likely be referenced during performance substantiations of modular water treatment assemblies.
(7) USEPA and ASDWA should vigorously promote this process as the preferred means to substantiate acceptable water treatment equipment products.
On an operational level, this program will not really be voluntary if it becomes accepted, and manufacturers need competitive field testing organizations to ensure reasonable costs.

Donna Cirolia emphasizes a few of the points made by Joe Harrison. No contract should be required between the manufacturer and NSF. The testing organization should be able to function independently. Portions of the draft policy on the verification of products document reads like a certification program, not a verification program. Also, do as many test plans as possible: do more up front to see where the project is going. The level of acceptance by the states is very important to the manufacturers. The definition of NSF's (or the verification entity's) role in this process is important.

John Sadzewicz states that in regard to existing data, the states need ALL existing data (successes and failures) in order to be able to evaluate it properly.

From the states' viewpoint, the project is useful because good technologies for small systems need to be identified and shared. For the states to be able to look at the data and share it among themselves, they need it verified, preferable by another source. If a testing organization is strong, less oversight may be necessary. The verification entity role needs to be developed as we work through this process, and may evolve as we work through the process. And depending on the individual state, the state may want to play a role in the verification process and the qualification of the testing organizations.

John Trax states that there is a concern about the communities in which the pilot testing will take place. The community needs to be involved and informed. Communication needs to be established.

The question is raised by Dallas Post regarding the states' acceptance of the testing data. How much will the required pilot testing be reduced by this project? This question was the objective of

the survey which was sent to the states. It is felt that some site-specific pilot testing may always be required. The demands of all states will likely not be met by the verification testing because it would be cost prohibitive.
Concerns are raised regarding communication in general with steering committee members (i.e. when member should be copied on letters, ballot responses, etc.).

Joe Harrison states that there is a concern regarding state acceptance of the testing organization qualification process and the credibility of the tester. He likes the example Penny Hansen handed out for a report/statement. He thinks that the way the report was prepared is very important: that the testing organization was honest, credible, and reputable. He said that a process is needed to ensure that appropriate overview is occurring so that a good report is produced.

Gary Logsdon states that an organization or person who has experience in testing, not design, of small systems is an ideal tester.

Bruce Bartley states that it would be a good idea for EPA and NSF to have another party with no financial stake to chair the steering committee.

Penny Hansen raises concern about QA throughout the entire process. This is the EPA's greatest issue: how much QA is needed and by whom and at what points in this process?

Bruce Bartley states that he has heard concerns from smaller businesses regarding travel costs for these meetings: Can meetings be held that would allow for Saturday night overstays? Can we rotate meeting locations? Can we have conference call capacity during these meetings so those who cannot attend listen and perhaps interact with attendees in the form of speaker phone?

Peter relays an issue from Sanjay Saxena, who was not able to attend: What is the role of the results database? How will verification data be fed into the database? What are the dissemination mechanisms for the results?

Penny Hansen states that the EPA is in the beginning of the process that will look at outreach and how to get the word out to the organizations.

John Dyson states that we need to define a small system and eventually a long term program base - how large of a system will this project cover? Also, for certain technologies, it may not be possible to reduce on-site pilot testing due to the large matrix of possible water qualities because the number of pilot tests would be endless.

Brenda Land states that the project does not address conventional technologies. Also, "micro" systems are a concern because they do not have dedicated operators.

David Pearson states that the manufacturer may not trust the field testing organization and may want their own representative on-site, increasing the costs further. He raises the question about manufacturers being their own testing organizations if they fulfill the requirements of a testing

organization.

Gary Ganzi states that we should consider making the assumption that some on-site pilot testing will be required, but the verification process will streamline the pilot testing, making it less expensive and generally acceptable to states.

Robin Collins suggests that we test the equipment under the worst conditions and then assume it will work under better conditions. Then the pilot testing can concentrate on other issues such as cost and operations and maintenance.

Regu Regunathan raises the concern about the variation in the protocol for different applications: the protocol has too many options internally, which could become confusing to those evaluating/accepting the study. In other words, the flexibility allowed by the protocol may cause the studies to not be comparable. Also, what will be the effect of the role of the guarantee or warrantee from the manufacturer?

Gary Ganzi states that the process should not compromise the need for competitive bidding or the role of proprietary information (by showing system costs, etc. on the internet).

David Pearson wants to know what confirmation/assurances the manufacturers will have that the states will accept this project: will they provide in writing what they will accept?

Lunch Break

Bruce Bartley distributes ballots for voting on which protocol should be developed first (which technologies should be priorities).

Discussion of Concerns and Identification of Major Concerns and Plan for the Resolution of Concerns

Peter Shanaghan summarized concerns into four major issues:

(1) Need to define the size/nature of equipment for which the verification process is intended.

(2) Need to determine how much QA is needed in order to generate data that will help reduce n-site pilot testing requirements.

- What are the roles and responsibilities of each party, especially the verification entity?
- What is the role of existing (historical) data?
- How will testing organizations be qualified?
- How much will verification testing reduce the need for on-site pilots?

(3) Better communication needs to be established:

- Between EPA/NSF and the steering committee
- Between everyone and the communities
- For effective diffusion of the "results" of the project

(4) Protocol issues (which need to be separated from the policies and procedures issues)

Jeff Adams states that the verification process is intended for small systems that are packaged or

modular, or for which the technology could be directly used by a small system.

Jerry Biberstine explains that the states' priority is the small system, because the large systems perform their own pilot testing.

Robin Collins states that operability is a key component for small systems: can the system be maintained? He thinks the testing should focus on operability and O&M issues.

Gary Logsdon explains that operability has a lot to do with operator competence. Joe Jacangelo also explains that pilot test operation is much more intensive than actual operation and may not be representative. Jeff Adams points out that during non-intensive operation periods of the pilot test, we can develop a good sense for the operability based on problems and maintenance required during that period.

There has been some apparent confusion about the systems that will be used for the pilot testing. The pilot equipment should be a full scale, commercially ready piece of equipment. The equipment can be a smaller version of what would be used for a large community, but cannot be a laboratory version of an entire system. Part of the confusion around the equipment that may be verified involves equipment considered of "pilot scale" for larger communities is likely used for smaller systems.

It is suggested that a pilot should be run on a small scale and that the operability and costs can be extrapolated upwards for larger systems. The same cannot always be done for a pilot with a large system trying to extrapolate to a smaller system because the smaller systems are typically more expensive.

Penny states that the issue of operability has come up in many of the ETVs. She suggests that some conclusion be drawn from the pilot test regarding the general operability of the system.

Peter Shanaghan states that a task force should be assembled to determine what the operational aspects of the testing should involve, as we cannot solve this issue today. Volunteers for this task force include Dallas Post, John Dyson, John Sadzewicz, Gary Logsdon, Joe Jacangelo, Jerry Biberstine, and Jeff Adams to oversee. The task force is to have a report ready by April 21.

Jerry Biberstine is elected to serve as a chairperson on the steering committee.

The second issue is discussed, regarding QA needed to ensure valid data and reduce pilot testing. Jeff Adams is going to form a task force to work on the role of existing (historical) data. He will announce the members of the group by March 12. Anyone interested in this task force should contact Jeff by March 7.

The role of the verification entity in the pilot test phase is to be ultimately responsible for the end quality of the test reports and needs to be able to assure the quality of that. Jeff Adams reviews some of the major roles of the verification entity: to review test plans from the beginning of the

process, to provide oversight of the process, to provide audits throughout the process, to review the final

report for readability and to insure that the quality plan was followed, and to take the burden off the states as to whether the data is credible.

States agree that it is important to have an entity to perform verification. Does not need to be just one entity, but an entity needs to be there. The issue is the contractual agreement between the equipment manufacturer and the verification entity. It is agreed that the manufacturer does not need a direct channel to the verification entity, and that the field testing organization can be the go-between, as this organization will be qualified by the verification entity. There may be some communication between the manufacturer and the verification entity, but it is not necessary.

It is pointed out that at first, the verification entity will largely oversee the field testing organizations, but over time, some field testing organizations will not need a lot of oversight. The steering committee needs to review and update the role of the verification entity on an ongoing basis. Also, there will be a need for periodic re-examination and re-approval of field testing organizations and laboratories, as personnel and facilities will change over time. This is a role of the verification entity.

David Spath asks where the money will come from to fund this project when the EPA ceases funding. The general response is the manufacturers will have to pay for their products to be verified and the field testing organizations may have to pay a fee to be qualified.

Also, who will pay for the protocols to be updated and created for new technologies? Maintenance fees will need to be established for these. However, it is too early to be concerned with the self-sustaining cost issues. They will be addressed at a later date.

As for the question of qualifying field testing organizations, a policy has been drafted and is currently under review. After initial review, it will be forwarded to the entire steering committee for review and comment.

As for the question of state acceptance mechanism, the results of the state survey that is currently being performed need to be evaluated and a resurvey of more specific items may be issued. The states will likely not sign any sort of agreement, because representatives of the states may change, etc. The results of the state survey will be ready by the May 20, 1997 steering committee meeting. We likely will not get any sort of real state "buy-in" until the program is established and is operational.

Other issues which are left:
EPA/NSF to deal with communication issues between them and the steering committee.
Other communication issues will be dealt with at the next steering committee meeting.
Diffusion of results will be dealt with at the next steering committee meeting.
Protocol issue need to be dealt with separately from the policies and procedures issues.

Meeting Attendees:
Peter Shanaghan, U.S. Environmental Protection Agency* [x]
Jeff Adams, U.S. Environmental Protection Agency*
Bruce Bartley, NSF *International**
Regu Regunathan, Culligan International
Gary Logsdon, Black & Veatch* [x]
Greg McKelvey, Kinetico Inc.* [x]
Joe Jacangelo, Montgomery Watson* [x]
John Simmons, Roberts Filter Group
Donald McKay, Roberts Filter Group
Steve Clark, U.S. Environmental Protection Agency* [x]
Donna Cirolia, Culligan International* [x]
Dallas Post, AWWA* [x]
John Trax, NRWA* [x]
Allen Hammer, Virginia Department of Health* [x]
John Sadzewicz, Ohio Environmental Protection Agency* [x]
David Spath, California Department of Health Services* [x]
Andy Fleckenstine
Daniel Muchin, Water Services Corp.
Penelope Hansen, U.S. Environmental Protection Agency*
Joe Harrison, WQA* [x]
Jerry Biberstine, ASDWA/Colorado* [x]
Carol Becker, NSF *International*
Harry Grenawitzke, NSF *International*
Tom Stevens, NSF *International*
Bruce DeMaine, NSF *International*
Chris Steele, NSF *International*
Robin Collins, University of New Hampshire
Bob Clark, U.S. Environmental Protection Agency - Cincinnati*
Ben Lykins, U.S. Environmental Protection Agency - Cincinnati*
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Peter Cartwright, Cartwright Consulting
Allison Wayman, ICF Kaiser
Rick Farmer, Calgon Carbon
Ray Thursby, Rosedale Products
Brenda Land, U.S. Forest Service
Anne Braghetta, Montgomery Watson
Gary Ganzi, U.S. Filter
John Dyson, Infilco Degrement
David Pearson, PCI Membrane Systems
Jim Bell, Smith & Loveless, Inc.

* Denotes Steering Committee members (voting and ex-officio)
[x] Denotes only voting Steering Committee members